

## ABSTRACT

Solid supports for chemiluminescent assays are provided. The solid support includes a plurality of probes covalently or physically attached to the support surface and a chemiluminescent enhancing moiety incorporated onto the surface or into the bulk of the support. The solid support can be a multi-layered support including an upper probe binding layer (e.g., an azlactone polymer layer or porous functional polyamide layer) adjacent to a cationic microgel layer. The azlactone-functional polymer can be a copolymer of dimethylacrylamide and vinylazlactone crosslinked with ethylenediamine. The cationic microgel layer can be a cross-linked quaternary onium salt containing polymer. A method and a kit for conducting chemiluminescent assays using the solid supports is also provided. The kit comprises a dioxetane substrate, a biopolymer probe-enzyme complex, and a solid support. The solid support can be an azlactone functional polymer layer adjacent to a cationic microgel layer; a porous polyamide functional layer adjacent to a cationic microgel layer; or a quaternized azlactone functional polymer layer.